

## Roanoke River Basin

The Roanoke River Basin covers 6,382 square miles or approximately 16 percent of the Commonwealth's total area. In addition to the Roanoke itself, the basin also contains the Ararat River Subbasin.

The Virginia portion of the Roanoke River Basin is defined by both hydrologic and political boundaries. The basin is bounded to the north by the James River Basin, on the east by the Chowan River Basin, and to the west by the New River Basin. The southern boundary of the basin is the Virginia/North Carolina State line.

The topography of the Roanoke River Basin ranges from steep slopes and valleys in the Valley and Ridge Province to gently sloping terrain east of the mountains in the Piedmont Province.

The Roanoke River Basin headwaters begin in the mountainous terrain of eastern Montgomery County and flow in a southeasterly direction to the Virginia/North Carolina state line. The Roanoke Basin passes through three physiographic provinces, the Valley and Ridge Province to the northwest, and the Blue Ridge and Piedmont Provinces to the southeast.

The Roanoke watershed is large enough to accommodate two major reservoirs, Smith Mountain and Leesville Lakes to the north, and Kerr Reservoir and Lake Gaston located at the junction of the Roanoke River and the North Carolina state line. These reservoirs range in size from the 49,000 acre Kerr Reservoir to the 3,400 acre Leesville Lake. These impoundments are used for both recreation and hydroelectricity.

Major tributaries in the northern section of the basin are the Little Otter and Big Otter Rivers along with the Blackwater and Pigg Rivers. Major tributaries in the southern portion include the Dan River, Smith River, and Banister River.

Over 62 percent of the Roanoke River Basin is forested, while nearly 25 percent is in cropland and pasture. Approximately 10 percent is considered urban.

The 1994 population for the Roanoke River Basin was approximately 669,681. All or portions of the following sixteen counties and six cities lie within the basin: counties - Patrick, Henry, Pittsylvania, Halifax, Franklin, Mecklenburg, Roanoke, Bedford, Campbell, Charlotte, Carroll, Brunswick, Montgomery, Botetourt, Floyd, and Appomattox; cities - Roanoke, Salem, Martinsville, Danville, Bedford, and South Boston.

The climate in the Roanoke River Basin is moderate but varied, with an average annual temperature of 56°F. This average ranges from 54°F in the Valley and Ridge Province to 59°F in the Piedmont Province. Extreme temperatures of 107°F and -1°F have been recorded. Average annual precipitation is approximately 44 inches. This varies from 37 inches at Concord to 50 inches at Peaks of Otter. The average annual snowfall is 12 inches.

The Roanoke River Basin is divided into six USGS hydrologic units as follows: HUC 03010101 - Upper Roanoke; HUC 03010102 - Middle Roanoke; HUC 03010103 - Upper Dan; HUC 03010104 - Lower Dan; HUC 03010105 - Banister, and HUC 03010106 - Roanoke Rapids.

Basin assessment information is presented in Tables 2.6-4-1, 2.6-4-2, 2.6-4-3.

TABLE 2.6-4-1

ROANOKE RIVER BASIN INDIVIDUAL USE SUPPORT SUMMARY TABLE

<b>Total Size Monitored:</b>	<b>Basin Size</b>
Rivers -2,209.46 miles	Rivers-9,392miles
Lakes - 97,848.20 acres	Lakes - 97,910acres
Estuaries - 0 sq. miles	Estuaries -0 sq. miles

Use	Water Body Type	Size Fully Supporting	Size Fully Supporting but Threatened	Size Partially Supporting	Size Not Supporting	Total Size Assessed
<b>Aquatic Life</b>	River	2,054.91	1,241.63	81.24	20.89	3337.46
	Lake	97,910.40	0	0	0	97910.4
	Estuary	-	-	-	-	0
<b>Fish Consumption</b>	River	9,332.08	35.67	55.79	0	9423.54
	Lake	28,642	69,268	0	0	97910.4
	Estuary	-	-	-	-	0
<b>Shellfishing</b>	River	-	-	-	-	0
	Lake	-	-	-	-	0
	Estuary	-	-	-	-	0
<b>Swimming</b>	River	263.58	308.45	264.94	186.95	1023.92
	Lake	97,910.40	0	0	0	97910.4
	Estuary	-	-	-	-	0
<b>Drinking Water</b>	River	1,907.90	0	0	0	1907.9
	Lake	73,339.80	0	0	0	73339.8

	Estuary	-	-	-	-	0
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TABLE 2.6-4-2 SIZE OF WATERS IMPAIRED BY VARIOUS CAUSE CATEGORIES IN ROANOKE BASIN

Cause of Impairment	Type	Major impact	Moderate/ Minor Impact
<b>General Standards (Benthic)</b>	River (mi)	0	26.72
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Unknown Toxicity</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Pesticides</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Priority Organics (PCB's)</b>	River (mi)	0	55.79
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Metals</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>pH</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Siltation</b>	River (mi)	11.43	35.24
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Organic Enrichment/Low D.O.</b>	River (mi)	9.46	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Thermal Modification</b>	River (mi)	0	1.24
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Pathogen Indicators</b>	River (mi)	186.95	264.94
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Habitat Alterations</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Suspended Solids</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0

TABLE 2.6-4-3 SIZE OF WATERS IMPAIRED BY VARIOUS SOURCE CATEGORIES IN ROANOKE BASIN

Source of Impairment	Type	Major Impact	Moderate/ Minor Impact
<b>Industrial Point Sources</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Municipal Point Sources</b>	River (mi)	8.95	21.00
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Combined Sewer Overflow</b>	River (mi)	20.00	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Agriculture</b>	River (mi)	89.87	170.27
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Silviculture</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Construction</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Urban Runoff/Storm Sewers</b>	River (mi)	22.56	33.78
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Land Disposal</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Natural Sources</b>	River (mi)	0	1.24
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Source Unknown</b>	River (mi)	57.00	134.36
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Habitat Modification</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>VDH Fish Consumption Advisory</b>	River (mi)	0	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0
<b>Hydromodification</b>	River (mi)	9.46	0
	Lakes (acres)	0	0
	Estuary (mi <sup>2</sup> )	0	0







